

Solving Two Step Equations

Lesson notes

Teacher should circulate to check understanding or have students post the correct solution on the white board.

Algebr Tiles may be used in conjunction with lesson.



Review of solving one-step equations!
Can you match the word or phrase to the description?



Word/Phrase	Description
Subtraction	You need to isolate this, or get it alone on one side.
Important thing to remember.	Use this to undo multiplication.
Variable	The inverse operation of addition.
Division	What you do on one side of the equation, you must do the same on the other side.

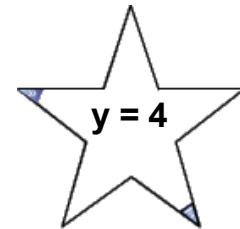


Quick review of one-step equations!



1) Please solve the following equation for y.

$$y \cdot 9 = 36$$



2) Solve the following equation for n.

$$n \div 7 = 5$$



3) Solve the following equation for z.

$$z - 15 = 35$$





Solving two-step equations is not much harder than solving a one-step equation.

The goal is the same for both, get the variable alone on one side, and solve.

* Don't forget, what you do on one side, you must also do on the other side!

1.0



MINI LESSON

When solving two-step equations you will use more than the one inverse operation to get the variable alone on one side of the equation. You may also have multi-step equations that feature the variable on both sides of the equal sign.

Example: Solve the following equation for w . $3w - 2 = 22$

Use inverse operations to get the variable alone on one side of the equation.

$$3w - 2 = 22$$

$$3w - 2 + 2 = 22 + 2 \quad (\text{Add 2 to both sides})$$

$$3w = 24$$

$$3w \div 3 = 24 \div 3 \quad (\text{Divide both sides by 3})$$

$$w = 8$$



Guided Practice



Another example of how to solve a multi-step equation.

Solve the following equation for z!

$$12 - z = 6z + 33$$

First, use inverse operations to collect the variable terms on the same side of the equation.

$$12 - z - 6z = 6z + 33 - 6z \quad (\text{Subtract } 6z \text{ from both sides.})$$

$$12 - 7z = 33$$

$$12 - 7z - 12 = 33 - 12 \quad (\text{Subtract } 12 \text{ from both sides.})$$

$$-7z = 21$$

$$-7z \div (-7) = 21 \div (-7) \quad (\text{Divide both sides by } -7.)$$

$$z = -3$$

The answer is $z = -3$!



Independent Practice

Try to solve these multi-step problems!



1) $34 + 3a = 41 - a$

2) $3m + 12 = 26 - 4m$

3) $10x - 22 = 23 - x$



GOOD JOB!

Closing

Solve

1) $10 = m/4 + 2$

2) What is the error in the students work?

$$12 - 3y = 15$$

$$3y = 3$$

$$y = 1$$